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sisted its being raised by six. The late Sir Benjamin Baker was a really big man, accustomed to very big things, and when he made a mistake he made a very big mistake, and Egypt is now paying $3,000,000 (£600,000) to cover that mistake. But the action deceives nobody, and all this foolish punching of holes and colossal waste of public money is a source of ridicule to the independent engineers of the country who know the history of the Dam."

GEOGRAPHICAL RECORD.

AFRICA.

Water in the Sahara.—While Civil Engineer David Levat was studying the metalliferous beds along the frontier in southeastern Morocco and southwestern Algeria (the region between Aïn Sefra, Shott Tigri and Figuig) he found impermeable rock under permeable strata (cretaceous sandstone). In view of the importance of water in the irrigation of the oases he endeavoured to ascertain the position of this impermeable level beneath the desert surface. The results were reported in the *Annales des Mines* (Jan., 1905) and reprinted (Dunod, Paris, 1905) under the title *Note sur la Reconnaissance d'un Niveau Aquifère dans le Sud-Oranais et dans le Sud-Marocain.* The study is of large practical as well as scientific value. It proves that the cretaceous belt, which extends along the northern edge of the desert and is about 120 miles wide, is underlain by a large supply of good water, which comes to the surface in some places and can everywhere be made available without much difficulty by means of comparatively shallow wells.

The Upper Currents in Egypt.—The *Survey Notes* of the Egyptian Survey (No. 14, Nov., 1907) appropriately bear the legend, *Ex Africa semper aliquid novi,* for they contain a discussion, by B. F. E. Keeling, of "Upper Air Research at Helwan." Certainly it is something very new to find that a systematic campaign has now been undertaken to investigate the conditions of the free air in Egypt. Only pilot balloons have thus far been employed, Mr. Keeling noting that it is quite impracticable, in Egypt, to send up self-recording instruments, "as the balloons would almost invariably burst on the desert between the Nile and the Red Sea, or even further to the east, and the prospect of ever seeing them again would be extremely remote." The ascents in August and September, 1907, showed the following conditions: The trades were 900-2,000 meters thick. The transition area between trade and anti-trade was some 3,000 meters thick. The direction of the anti-trade was from west to southwest, the average direction being about west-southwest. Deviations from this general arrangement were common.

During September, the trade wind showed signs of becoming thicker, and the transition stage was more drawn out. On September 6 the westerly anti-trade came down to about 700 meters. On the 24th the anti-trade was not reached below 6,000 meters. On the 27th, although the surface wind was almost absent, the lower limit of the anti-trade was 3,000 meters high.

On the four days on which the observations reached 5,000 meters or more, the mean velocities for successive zones of 1,000 meters were 5.0, 7.0, 7.8, 10.2 and 9.0 meters per second, in ascending order. R. DeC. W.

DUST STORMS IN EGYPT.—In the *Survey Notes* for November, 1907, published by the Survey Department of Egypt, reference is made to the circular dust storms (desert whirlwinds) observed on the plateau traversed by the Abyssinian Railway. These storms were seen after the first ascent from the coast, especially in the afternoon. As many as eight or ten could be seen at once. They appeared to be almost stationary, and were of great height. On the road from Diré Dana to Addis Ababa about sixty of these whirls passed close enough to the observer to make the direction of rotation clearly visible. In all but two cases the motion was clockwise. The whirls moved with the prevailing wind, generally from east to west, but the velocity of advance appeared to have no definite relation to the wind velocity. The rotational velocity was enough in one case to lift a closed umbrella, a hat and a walking stick from the ground and to carry them several meters. In another case, some small branches were broken off of a mimosa tree. The top of the whirls generally spread out in a disc-shape, and around the margin a few birds were often seen, apparently looking for insects caught up by the ascending air. The indraught was greatest on the front of the whirl, and near the ground. Here the stream-lines of the air were plainly visible in the dust. The whirls which passed near the observer were accompanied by a roaring sound. R. DeC. W.

THE CLIMATE OF ERITREA.—There are three zones: (1) the coast zone; (2) the zone of valleys and escarpments, and (3) that of the high plateau and alpine summits. In the coast zone the heat and humidity combine to make conditions very trying to Europeans. Rain falls, as a rule, in November to April only. In the second zone, the régime of the summer monsoon rains is found, although portions near the coast have winter rains also. Thus it is well to subdivide into the slopes facing the seaboard and those facing the Sudan. On the seaboard slopes a great diversity of products may be cultivated, according to the altitude, but the climate is trying for Europeans. The continental slopes, *per contra,* forming about three-fifths of the whole area of Eritrea, are drier and cooler at night. The third zone, above 6,000 feet, includes only a small portion of Eritrean territory. Most of the rain falls in summer (monsoon). The maximum temperature comes in the dry season from November to May (*Quart. Journ. Roy. Met. Soc.,* Oct., 1907). R. DEC. W.

RAILROADS IN GERMAN EAST AFRICA.—It is learned from the *Verhandlungen* of the Kolonial-Wirtschaftliches Komitee (Dec. 19, 1907) that the Daressalam railroad has been completed over 100 miles inland to Morogoro and that traffic was opened over the section on Dec. 16. The preliminary studies have been concluded for the extension of the line to Tabora, south of the Victoria Nyanza and an important trade collecting point. Preparations are being made for the extension of the Usambara railroad to the Pare mountains and to Mount Meru. The projected railroad from Kilwa-Kissiwani on the Indian Ocean to Lake Nyasa is now certain to be built.

AFRICAN ETHNOLOGY.—The South African Museum, Cape Town, issues as Part V., Vol. V of its *Annals* a report by Dr. F. C. Shrubsall "Notes on Some Bushman Crania and Bones from the South African Museum." It is an important contribution to the ethnology of that region, though based on the study of only eighteen skulls and bones. Starting with a series of the skulls of Strandloopers the author says they constitute a group purer than that of the Bushmen and apparently quite distinct from the Hottentots. The up-country Bushmen are intermediate between the Strandloopers and the Hottentots, while the latter are between the up-country Bushmen and the Bantu and, in many respects, more nearly approach the Negroes of British Central Africa than the Kafir tribes of the east coast.

The author says the Central African pygmies, by their prognathism, are clearly removed from the Bushmen and the forest pygmies seem to be largely mixed with the Negro strain. Thus the purest dwarf race was recently located at the extreme south of the continent, the farthest point to which they could retreat from the attacks of stronger peoples.

Dr. Shrubsall deduces the conclusion from his studies that the first inhabitants of South Africa were of the Bushman type. Tall Negro tribes of the Great Lakes and the upper Nile Valley were driven southward by pressure from the east and they, in turn, forced the Bushmen, some to the extreme southern coast and some to the forests, where they intermarried with their neighbours. Other Negroes passed north of the forest zone towards the Atlantic and tribes from across the Sahara drove some of them back to the forest and others down to the Atlantic, where they physically deteriorated owing to unsuitable environment. Some of the Negroes forced down the Nile Valley may have taken with them or driven before them survivors of the northern Bush races and, in this way, the dwarfs came into contact with Egypt. It is possible, however, that the range of the dwarfs formerly extended much further north than has been supposed.

These conclusions rest upon the examination of a comparatively small number of skulls and it is to be hoped that Dr. Shrubsall's speculations will be extended and supplemented.

LIFE ZONES OF RUWENZORI.—In the paper by R. B. Woosnam of the British Museum Expedition to Mount Ruwenzori, read at the Leicester meeting of the British Association in August last (GEOG. JOUR., Dec., 1907), he describes the fairly well-marked zones of vegetation extending around the ridge in belts. The boundaries of these zones are not so well defined on the west side and extend lower down than they do on the east, which may probably be accounted for partly by the more humid climate of the west side and of the Congo basin. He enumerates six zones as follows:

Grass Zone.—Extending from the foot of the range to an altitude of 6,500 feet on the east and somewhat lower on the west. It includes most of the flora and fauna of the surrounding districts.

Forest Zone.—From 6,500 to 8,500 feet. The lower margin of the forest zone is almost as tropical in appearance as the forests of Uganda and the Congo; but at 7,000 feet much of the tropical nature of the vegetation disappears and species of birds and mammals, known only from Ruwenzori, begin to appear. Up to this altitude animal life is abundant, there being a large variety of small mammals, and on a bright morning the forest teems with bird life. Above the forest there is a marked contrast and, as the higher regions are reached, signs of life become rarer.

Bamboo Zone.—Extends on the east side from 8,500 to 10,000 feet and on the west from 7,000 to 8,500 feet. Where it is unmixed with forest it is impenetrable without cutting a path. In these bamboo jungles there is little or no life, the mammals, with the exception of monkeys and chimpanzees, finding no food, and birds preferring more open country.

Tree-heath Zone.—From 10,000 to 12,500 feet. The scenery in this zone is extraordinary. Trunks and branches of trees are wrapped in thick coats of moss and the trees lean at all angles. A layer of soft moss, a foot or more deep, makes walking difficult and dangerous. Very few birds inhabit these wet and gloomy regions.

Lobelia and Groundsel Zone.—From 12,500 to 14,500 feet. Stately lobelias and fantastic senecios are the characteristic vegetation. Everlasting-Flower bushes, which are conspicuous a little above 11,000 feet, grow in profusion. The ground is soft, black mud covered over with deep moss of many shades of green and yellow. The lobelia growing here is a species new to science (*Lobelia Wollastoni*) known only from Ruwenzori but closely allied to an Abyssinian species (*Lobelia rhynchopetalum*).

Snow Zone.—From 14,500 feet to highest summit, 16,815 feet. Permanent snow lies at about 14,500 feet and, as Ruwenzori is practically on the equator, the snow line is constantly at the same altitude. No birds or mammals live above the snow line. Butterflies, moths, and diptera were seen on the snow up to 16,000 feet, but they were accidental stragglers and not residents. A few lichens and mosses were seen on the bare rocks above the snow.

The larger mammals, such as elephants, buffaloes, and waterbuck do not ascend the mountains above 5,500 feet. The bushbuck sometimes goes up to 7,000 feet. Wild pigs and the lions that prey on them are met with in the forest zone. Of the birds the majority are small, and kites, buzzards, and ravens were the largest found. No birds or mammals with special adaptations to the wet and cold of Ruwenzori were noticed; on the contrary, the most numerous species, inhabiting the wettest and coldest zone from 12,500 to 14,000 feet, is a sun-bird of brilliant colour.

AMERICA.

MINERALS IN SOLUTION IN THE LEHIGH RIVER.—Hydrologists of the U. S. Geological Survey have been making a study of the quality of the water of the Lehigh River. The analyses made by chemists in the Survey's laboratory at Washington show that each year about 270,000 tons of dissolved minerals are carried past South Bethlehem. Of this quantity, 10.2 per cent. is silica, more than 15 per cent. is calcium, washed into the stream as sulphate and carbonate of lime; nearly 6 per cent. magnesium, nearly 8 per cent. sodium and 1 per cent. iron. The sulphate compounds are the chief constituents, amounting to about 116,000 tons a year; the carbonates are next in rank, aggregating about 86,000 tons a year. These quantities seem great, but the materials are washed into the stream from a large area. For each acre of ground that the river drains it bears away only 1¾ pounds of minerals daily.

GEOLOGICAL SURVEY WORK IN ALASKA.—The work of the Survey in Alaska, during 1907, was confined to a detailed study of the copper deposits on Kasaan Peninsula, Prince of Wales Island. A topographic map of this area was made in May and June by Mr. D. C. Witherspoon and Mr. J. W. Bagley. In July and August Messrs. C. W. Wright and Sidney Paige mapped the geology of the peninsula and in September and October Mr. Wright made a study of the ore deposits. The results of this work and a summary of the mine developments will be printed in the annual report of progress of investigations of Alaska's mineral resources, which will be issued in June.

BULLETIN OF THE MOUNT WEATHER OBSERVATORY.—The U. S. Weather Bureau has begun the publication of this quarterly, which will contain accounts of the researches conducted at the Mount Weather Observatory. No. 1 is a handsomely printed large octavo magazine of 63 pp., besides six-page charts of upper air isotherms, nine-page half-tones of the administrative building of Mount Weather, kites, and other appliances for observation and three text figures. The articles in the first number deal with the origin and purposes of the Observatory, the methods and apparatus used, the results of kite flights, and the use of upper air data in weather forecasting, the last article written by Professor A. J. Henry.

CHIEF GEOGRAPHER OF THE U. S. GEOLOGICAL SURVEY.—Mr. Robert B. Marshall of the Survey has been appointed to administrative charge of the Topographic Branch with the above title. He has been connected with the Survey since 1890. In 1903 he took charge of topographic work in California and his district was enlarged two years later to include Oregon. In 1907 he was made geographer in charge of the newly formed Pacific Division which comprises California, Oregon, Idaho, Nevada, Utah, and Arizona. Mr. Thomas G. Gerdine succeeds Mr. Marshall in charge of the Pacific Division.

ASIA.

THE MAP OF INDIA.—The Government of India (*Report* of the Survey of India, 1904-5) appointed a Committee to consider the condition of the maps in each province and the measures required to bring them up to date. The maps of practically the whole of India were therefore examined in Calcutta. It was found that while these maps were undoubtedly good at the time they were made and their accuracy, so far as they went, was unquestionable, they were inconvenient in size, not up to modern standards in reproduction, had not been prepared on a uniform system, were deficient in heights and levels and were out of date for many parts of the country.

The Committee recommended the preparation of a new series of maps of the whole of India to be produced in colours; the surveys in future, as a rule, to be made on a scale of 2 inches=1 mile for reduction and publication on the one-inch scale.

In order to carry out these decisions it will be necessary to revise in the field practically the whole of the existing 1-inch maps of India and to survey on either the 2- or the 1-inch scale the whole of the country, as maps on those scales have never yet been prepared. The total area, excluding Baluchistan and the Northwest Frontier tribal areas, is 1,673,300 square miles. It is proposed that the whole of this work shall be carried out within twenty-five years, while the survey of Baluchistan, the Northwest Frontier Province, and the adjacent country shall be completed within a much shorter time.

EUROPE.

PROTEST AGAINST THE PROPOSED MATTERHORN RAILROAD.—The Alpine Club in London has adopted a protest against the scheme of piercing a shaft in the Matterhorn and converting its summit into a series of grottos with glazed windows and balconies. Sir W. Martin Conway, who occupied the chair at the meeting, said he believed the Club would enter the heartiest possible protest against the proposed tunnelling of the Matterhorn and the still more atrocious proposition to lay down on the virgin snow of the Aletsch Glacier a sledge railroad which should traverse the whole length of that marvellous solitude. The Bishop of Bristol urged the desirability of a *freiheit* from invasion by railroads for all Swiss mountains above the limit of perpetual snow or, if this could not be conceded, that there should be immunity for the greatest of the Swiss mountains, which would, of course, include the Matterhorn. Sir F. Pollock said the suggestion of "no railroads above snow line" appeared to be most sound and practical. A letter was read from Mr. J. Bryce expressing his cordial sympathy with the efforts of the English branch of the Swiss Ligue pour la Conservation de la Suisse Pittoresque to elicit a declaration of opinion from lovers of the Alps against the scheme to construct a railroad up the Matterhorn. A letter from Mr. Whymper concluded as follows:

> The project of a railway up the Matterhorn is not a new one. It was formulated more than a dozen years ago and has been held back until what is deemed a favourable moment. It is the scheme of a small group of company promoters. My opinion is that the project of a railway up the Matterhorn is injudicious and undesirable. I think that it will not benefit Switzerland and will be injurious to the guides of the Zermatt valley and to those of the Val Tournanche.

The resolution adopted emphatically approved the protest of the Swiss people against the construction of a railroad up the Matterhorn. On August 31 more than 40,000 signatures had been received in Switzerland to the protest which was to be presented to the Federal Council.

THE OCEANOGRAPHICAL MUSEUM IN BERLIN.—The guide book of the Museum für Meereskunde in Berlin explains the numerous exhibits and contains photographs of many of them. The museum was founded in 1900 by Baron von Richthofen. It fills sixteen rooms, an entire building being devoted to it. Its Director is Prof. Dr. Albrecht Penck, and the collections have been open to the public since 1906 and are also used in some of the courses of the University of Berlin. The large number of models and other exhibits illustrate the phenomena of the sea, its physical conditions, the appliances used in its exploration, the great variety of life it contains, its economic importance, and its history in relation to man. All geographical visitors to Berlin should see these superb and instructive collections.

OCEANOGRAPHY.

THE WORK IN 1907 OF THE MAGNETIC SURVEY YACHT "GALILEE" IN THE PACIFIC.—The *Year Book* of the Carnegie Institution for 1907 contains a report by Dr. L. A. Bauer on the work of the *Galilee* in that year. Dr. Bauer has added information of the movements of the *Galilee* early in 1908.

She left San Diego, Cal., on Dec. 22, 1906, with W. J. Peters as Commander, Messrs. J. C. Pearson and D. C. Sowers, magnetic observers, and Dr. G. Peterson, surgeon and recorder. Captain J. P. Hayes continued as sailing master. The route was to the Marquesas Islands, Tahiti, Apia (Samoan Islands) and Yap (Caroline Islands) to Shanghai, which was reached on May 8. At all ports visited examinations were made with regard to the distribution of the magnetic elements and the *Galilee* instruments were compared whenever possible with magnetic observatory standards. Magnetic observations were made at sea whenever conditions permitted.

Leaving Shanghai on May 31, the vessel arrived on July 15 at Sitka, Alaska, where she was inspected by Dr. Bauer. Mr. P. Dike succeeded Mr. J. C. Pearson, who had been continuously on sea duty for a year and a half and was now assigned to magnetic work in the Yukon territory. Mr. Dike was to take part in the regular magnetic observations and attempt experimental work in atmospheric electricity.

From Sitka the *Galilee* started on Aug. 10 for a cruise extending over both the north and south Pacific. She reached Honolulu on Sept. 26, and here, as at Sitka, shore magnetic observations were made. Leaving Honolulu on Sept. 26 the *Galilee* reached Lyttelton, New Zealand, *via* Midway Island and Jaluit of the Marshall Islands on Dec. 24. It was expected that she would leave Lyttelton about Jan. 15 for Callao, Peru, where she is due to arrive early in March. Thence she will return to San Francisco about May 1.

The *Galilee* will then have travelled since Aug. 1, 1905, about 65,000 miles, embracing the Pacific Ocean from America to Asia and from the Aleutian Islands to New Zealand. A complete determination of magnetic declination, magnetic inclination, and intensity of magnetic force has been secured at sea about every 200 or 250 miles along the entire route, and numerous magnetic results have also been secured at ports and islands. It is believed that all the results obtained will be reduced and published soon after the vessel's arrival in San Francisco next May. The work has already provided one result of great practical importance to navigation. The Carnegie Institution supplied data to the U. S. Hydrographic Office that enabled it to issue last spring a new chart of the "Lines of Equal Magnetic Variation" (Magnetic Declination). It was found that in the Pacific Ocean the charts were erroneous along some routes by as much as three or five degrees, the errors being of sufficient magnitude to be taken into account in practical navigation.

POLAR.

THE BRITISH ANTARCTIC EXPEDITION OFF FOR VICTORIA LAND.—Reuter reports the return of the steamer *Koonya* to Wellington, New Zealand, after towing the *Nimrod,* Lieut. Shackleton's ship with the British Antarctic expedition on board, to within a mile of the ice. Heavy gales prevailed from Jan. 1 to Jan. 15, when the two vessels parted company. The disconnection of the tow lines was extremely difficult owing to the icebergs. Lieut. Shackleton reports that the *Nimrod* is a wonderful seaboat. His farewell signal was "Crew all well. Confident of success."

DR. CHARCOT'S ANTARCTIC PLANS.—*Reuter* has published further details regarding the expedition which Dr. Jean Charcot will lead to the Antarctic regions next summer. He hopes to start in July and expects to be absent two years, though supplies for three years will be taken. He thinks that the best route southward is by way of the Ross barrier, but he regards this as belonging to English explorers and will not travel that way. He will return to Graham Land, south of South America, and endeavor to reach Alexander Land, a little further south, where it is thought a barrier similar to that of Ross's may be found. The expedition will then try to go as far south as possible, though its main purpose is scientific work.

The Marquis de Dion is building motor sledges for the equipment and the sledges will be tested this winter in the Alps. The ship will be especially strong to resist ice pressure. She will be of barquentine rig, 135 feet long and 30 feet beam, with compound engines of 550 horse power, and will carry 230 tons of coal and 10 tons of provisions. The crew will consist of twenty-two men, ten of whom are members of Dr. Charcot's last expedition. The scientific staff will consist of the leader, three naval officers, two zoölogists, one geologist, and one physicist for magnetic and photographic work. The French Parliament has already supplied $60,000 and expects to vote another sum of equal amount, private subscriptions have yielded $13,000, and Dr. Charcot is now trying to raise $22,000 more. The Academy of Sciences has prepared the scientific programme, and the Committee of Missions of the Ministry of Public Instruction has drawn up a favourable report on the plans. The Marine Department is contributing the necessary coal and an excellent collection of scientific instruments, and the Oceanographical Institute of Paris is also helping.

ARCTIC METEOROLOGICAL EXPEDITION.—The *Revue Scientifique* says that the Belgian Government is organising an Arctic meteorological expedition, which will start next summer under the command of Mr. Georges Lecointe, director of the Royal Observatory at Uccle.

SCIENTIFIC RESULTS OF THE ZIEGLER POLAR EXPEDITION, 1903-1905.—This handsome volume, illustrated by fine views and maps, treats the scientific work of the Ziegler Expedition, commanded by Mr. Fiala, in 1,630 folio pages. The expedition was deficient in experienced observers and instrumental outfit so that the scientific work was necessarily confined to magnetic, meteorological, tidal, and astronomical observations and deductions, notes and sketches of the Aurora Borealis and map construction and survey work. Astronomical observations for precise geographical positions received considerable attention. The party was unable to give much study to the geology and biology of the region or to make collections in natural history, but it is to be noted that some coal was discovered on Coalmine Island at a high elevation and traces of coal were also found at Cape Richthofen.

More than half of the book is devoted to the results of observations on terrestrial magnetism. A series of graphs has been constructed showing the change of the amplitude of diurnal variation with the time of the year, the times of principal maximum and minimum positions, the epochs of mean declination and the existence and form of the secondary maximum and minimum. A large amount of meteorological information was collected and two satisfactory series of tidal observations were made at points about 150 miles apart. Mr. L. P. Shidy, Chief of the Tidal Division of the U. S. Coast and Geodetic Survey, concludes that the tide wave reaches the Spitzbergen archipelago "by the two channels on either side of Spitzbergen, the one flowing west of that island arriving about four hours earlier." Mr. Fiala's sketches showing the successive appearances of the Aurora on three occasions, reproduced by lithography, are very attractive. The BULLETIN has already referred to the map of the polar regions compiled by Mr. Gilbert H. Grosvenor for this volume, and the map survey work is produced in an excellent set of maps by Mr. Russell W. Porter. Mr. W. J. Peters, who was in charge of the scientific work, was unable, on account of his new duties in the Carnegie Institution, to attend personally to the reduction and publication of the results, and Mr. John A. Fleming edited the volume.

VARIOUS.

GEOLOGICAL NOMENCLATURE.—*The Journal of Geology* (No. 8, 1907) reports that the Mississippi Valley Association of State Geologists has adopted a resolution expressing its belief "in the desirability of a thorough reconsideration of the principles which should govern the nomenclature of geology and its willingness to co-operate in any movement for the the bettering of present conditions." The Association ordered that copies of the resolution be sent to the secretary of the Geological Society of America, to Director Smith of the U. S. Geological Survey, and to the Conference of Geologists then in session in Washington.

In commenting upon the resolution, Professor Chamberlin, of the editorial staff of the *Journal of Geology,* commended the wisdom of the Association in the adoption of the resolution and expressed the hope that the organizations to which it was sent would respond with hearty co-operation and that the end would be "such wise control of the growth of our nomenclature as shall give it at length the highest practicable serviceability." Professor Chamberlin's remarks include the following:

> It is probably safe to say that several times as many people as are now interested in our science would be among its enthusiastic promoters, if its great truths had been habitually clothed in the plainest available terms in the literature of the past century. The history of the earth and of its inhabitants, the processes of its evolution and the facts of its structure are inherently interesting and, if the story were so told that it could be read easily and intelligibly, it would give both pleasure and profit; but the current of the reader's enjoyment is so often needlessly checked by unintelligible terms, that he soon becomes weary and lays the annoying text aside for something less trammeled by pedantic toggery. This is not solely a layman's affliction. Geological readers of no mean literary and scientific attainments are all too frequently caught and held by the briars and brambles of our crudely technicalized literature.

REVUE DE GÉOGRAPHIE.—This well known periodical, founded by L. Drapeyron in 1877, has become an annual which will be published under the direction of Ch. Vélain, Professor of Physical Geography in La Faculté des Sciences de Paris. Vol. I, embracing the years 1906-7, is a handsome quarto of xxi and 597 pp. The articles are of the best geographical quality and filled with the spirit and results of recent geographic research.

The book is in two parts, the first devoted to original memoirs. Two of the three papers in this section come under the head of physical geography, one of them being "Recherches sur l'évolution morphologique des Alpes de Transylvanie (Karpates méridionales)," by Prof. Emm. de Martonne (279 pp.). The memoir is prefaced by a bibliography of 176 titles of maps, books, and articles relating to the Carpathians. The other paper is "Érosion fluviale, Érosion glaciaire (Observations de Morphologie comparée)" (28 pp.), by Prof. J. Brunhes. Part I. concludes with a study in economic geography "Le Régime douanier des colonies françaises et des pays de protectorat," by Prof. E. Fallot (20 pp.).

Part II. is a critical review of recent geographical research, literature, cartography, and educational methods under 11 titles. Among the best examples of the plan and treatment of topics in this part of the book are Prof. Vélain's "État Actuel de nos Connaissances sur la Géographie et la Géologie du Sahara d'après les Explorations les plus récentes," "Nos Idées Nouvelles sur le Bassin Polaire d'après les Résultats scientifiques de l'expédition Nansen (1893-1896)," by Prof. M. Zimmermann and "Cartographie" by Mr. A. Berget.

BOOKS FOR SELF-INSTRUCTION IN EASTERN LANGUAGES.—The Society has received from E. Marlborough & Co., publishers of London, three of the volumes in their self-taught series of languages. The books in this series are compact and intended to meet various needs. Number 17, for example, "Japanese Self-Taught" (108 pp., price, 2s. 6d.), is for those who wish to use the spoken language without the usual expenditure of time to acquire the grammar to which number 18, "Japanese Grammar Self-Taught," is devoted. "Tamil Self-Taught and Grammar" (216 pp., price, 7s. 6d.), aims to help the student to acquire a knowledge of the grammar of colloquial Tamil in a short time. "Hindustani Grammar Self-Taught" (pp. 120, price, 2s. 6d.), gives the essential points and rules of the grammar in a simplified form. The books are luminous without being elaborate, are excellent bits of text book preparation, and qualified to be of practical usefulness to persons who go to regions where the languages are spoken. All the books in this series relate to the European and Oriental languages.

MONTHLY RECORD OF CARTOGRAPHY.—Geographers will welcome the announcement that the firm of Justus Perthes, Gotha, intends to issue a monthly publication in the form of a supplement to *Petermanns Mitteilungen* to supply information on new publications in the field of cartography. Its name will be the *Kartographischer Monatsbericht.* The editor will be Dr. H. Haack, who in the *Geographen Kalender* has published an annual list of the most conspicuous maps. The purpose of the publication is to print exhaustive reports on new maps issued either by governments or private firms, and also on all publications dealing with cartography in a large sense. The publication should be of special value to American geographers who hope that in the near future cartography and map reading may be more adequately represented in our school courses.

USING THE TIDE TO GENERATE ELECTRICITY.—*Science* says it is reported that a joint stock company has purchased a large tract of land at the mouth of the Elbe, where power works are to be erected and the ebb and flow of the tide will be utilized in generating electric energy for factories soon to be established.

CONVERSION OF CENTIGRADE INTO FAHRENHEIT READINGS.—Dr. G. Hellmann, of Berlin, has recently suggested a simple method of converting Centigrade into Fahrenheit thermometer readings. The usual way of obtaining 9/5 of the Centigrade readings is awkward, and not readily carried out in the head. Hellmann uses 18/10, and this gives the multiplier of 2-2/10. Thus 15°C. becomes $30^\circ - 3^\circ = 27^\circ$Fahr. And 27° added to 32° gives 59°Fahr. Or, if preferred, 1/10 of the original Centigrade reading may first be subtracted, and then the resulting number multiplied by 2. Thus, $15^\circ\text{C.} - 1.5^\circ = 13.5^\circ$; and $13.5^\circ \times 2 = 27^\circ + 32^\circ = 59^\circ$Fahr. R. DeC. W.

A COURSE OF SIX LECTURES on the geographical distribution of rainfall in the British Isles was given by Dr. H. R. Mill in the map room of the Royal Geographical Society on Thursday evenings in January and February, 1908.

"THE RED BOOK OF NIAGARA" has been enlarged. Many of the new photographs were taken by Mr. Irving P. Bishop, the author. The scientific sections give information about the geology and botany of the region that will interest every intelligent traveller. This guide is published by Charles A. Wenborne, Buffalo, at 25 cents.

THE JANUARY NUMBER of the *Bulletin* of the Geographical Society of Philadelphia contained the addresses at the meeting of the Society in memory of Prof. Angelo Heilprin. The speakers were Mr. Alba B. Johnson, President of the Society; Mr. Henry G. Bryant, Dr. E. J. Nolan, Prof. R. H. Chittenden, Mr. Herbert L. Bridgman, Prof. William Libbey, Mr. Frank B. Greene, and Dr. Theodore Le Boutillier.

"LE CALENDRIER-ANNUAIRE POUR 1908" (sixth year), published by the Catholic Mission of Shanghai, is a well-printed almanac and record of events. It includes astronomical tables for the year, a list of elevations above sea-level of many important towns on the Chinese railroads, open ports and markets with amount of commerce in 1906, principal events in China for the year July, 1906-June, 1907, meteorological data, statistics of Chinese railroads, names of postal and telegraph stations, conversion tables for Chinese and foreign money and much other information.

PROF. J. PAUL GOODE, of the University of Chicago, is spending six months at Washington ,to consult the geographical works in the Congressional Library.

MR. BAILEY WILLIS, of the U. S. Geological Survey, gave six lectures at the University of Illinois in February, most of them dealing with the past and present geography of North America. He also gave an account of his recent geological experiences in China.

The Imperial Russian Geographical Society celebrated on the 17th of February the Twenty-fifth Anniversary of Prof. Dr. A. de Voeikoff's presidency of the Meteorological Commission.

PROF. ROLLIN D. SALISBURY, University of Chicago, and Dr. H. Foster Bain, State Geologist of Illinois, are giving special lectures in geology at the University of Wisconsin this year.

MR. HENRY G. BRYANT has presented the anthropological collections he made among the Eskimos to the University of Pennsylvania.

THE WYOMING HISTORICAL AND GEOLOGICAL SOCIETY, of Wilkes-Barré, celebrated on the 11th of February the 50th Anniversary of the Society and the 100th Anniversary of the Burning of Wyoming Coal for Domestic Use.

SAILING VESSELS are still active in spite of the extensive traffic of steamships. Even now the carrying of grain from the Pacific Coast to Europe is done almost wholly by sailing vessels, which also carry a large percentage of the lumber exported from the southern ports of the United States. The full-rigged ship is being replaced by barks, barkentines, and other vessels having fewer sails and less rigging than ships, and therefore requiring fewer sailors. At the same time there is an increase in the size of the hulls and thus the decrease in the number of the crew is accompanied by an increase in the carrying capacity of the vessels. Labour is saved in the operation of sailing vessels by economizing in the construction of the hull and in the character of the rigging, and sometimes by the use of steam winches for hoisting and lowering sails and other mechanical devices for saving hand labour. From "Ocean Freight Rates," by Frank Andrews (U. S. Dept. of Agric., Bureau of Statistics, *Bull.* 67).

AMERICAN GEOGRAPHICAL SOCIETY.—The Annual Meeting of the Society was held at Mendelssohn Hall, No. 119 West Fortieth Street, on Tuesday, January 21, 1908, at 8.30 o'clock, P. M.

Mr. Anton A. Raven in the chair.

The following persons, recommended by the Council, were elected Fellows:

Adolph L. Bernheimer,	Henry Phipps,
Bayard Tuckerman,	Charles G. Rockwood.

The Report of the Council for the year 1907 was presented and read by the Secretary, Mr. Levi Holbrook:

The number of Fellows on the 1st of January was 1,403, and on the 31st of December 1,319, of whom 363 were Life Fellows.

The additions to the Library during the year were 4,569: Periodicals and pamphlets 3,334, Books 625, Maps and charts 590, Atlases 20.

Rooms in the Society's house have been placed at the disposal of the Geography Teachers' Association for its occasional meetings.

For the condition of the finances reference is respectfully made to the Treasurer's report, herewith presented.

All of which is respectfully submitted.

CHANDLER ROBBINS,
Chairman.

LEVI HOLBROOK,
Secretary.

The Report of the Treasurer, Mr. Henry Parish, Jr., for the year 1907 was read:

The amount on hand January 1 was	$2,321.70
During the year there were received for Fellowship Dues, Sales of Publications, Interest on Investments and Donations	22,498.32
	$24,820.02
There were expended for Exploration, Salaries, Meetings, Library, Publications, House expenses, Insurance and Postage	20,851.17
The amount on hand December 31 was	$3,968.85

The reports were approved and ordered on file.

The Report of the Committee charged with the duty of selecting candidates for the offices to be filled was presented and read:

January 11, 1908.

The Committee appointed November 21, 1907, to nominate and recommend to the Society suitable persons to be elected in January, 1908, to fill vacancies then existing in its offices, respectfully report that they recommend the election of the following named persons to the offices below designated:

		TERM TO EXPIRE IN
President	ARCHER M. HUNTINGTON	1909
Vice-President	JAMES D. HAGUE	1909
Vice-President	JOHN GREENOUGH	1911
Treasurer	HENRY PARISH, JR	1909
Domestic Corresponding Secretary	ARCHIBALD D. RUSSELL	1911
Councillors	HENRY HOLT, FORDHAM MORRIS, HERMAN C. VON POST, JOHN S. BARNES,	1911

CHANDLER ROBBINS,
WM. WATTS SHERMAN,
HAMILTON F. KEAN,
Committee.

The Chairman asked the pleasure of the Society with regard to the report. It was moved and seconded that Mr. Cyrus C. Adams be authorized to cast the vote of the Society for the persons named. It was so done, and they were declared duly elected.

The Chairman then introduced Mr. Frederick Monsen, who addressed the Society on The Land of the Navajo. Stereopticon views were shown.

On motion, the Society adjourned.

NEW MAPS.

AFRICA.

ABYSSINIA.—Itinerario al Lago Zuai del Dottor Lincoln de Castro (Feb., 1907). Scale, 1:580,000, or 9.1 statute miles to an inch. *Bollettino* of the Italian Geographical Society, Rome, January, 1908.

A black and white sketch map showing Dr. de Castro's itinerary from Addis Ababa to Lake Zuai, one of the series of lakes occupying depressions between Addis Ababa and Lake Rudolf. The topography and distribution of cultivated lands are shown, also a considerable number of small lakes not indicated as yet on atlas sheets.

CONGO FREE STATE.—Carte Politique de l'État Indépendant du Congo. Scale, 1:4,000,000, or 63.1 statute miles to an inch. Département de l'Intérieur, État Indépendant du Congo, Brussels, 1907.

This new edition of the map gives the latest cartographic information relating to the Congo Free State. The nomenclature is very large and every name may easily be found by referring to the index letters on the margins. Symbols differentiate the administrative town of each district and zone, the state stations, European settlements, Catholic and Protestant missions and villages. Telegraph lines and railroads in operation or building are indicated, rivers navigable for steamers are in blue, and other rivers in black. The boundaries of the districts and zones are in colours. It would have added to the value of the map if the concessions of territory to trading companies had been outlined.

GOLD COAST.—Gold Coast. Scale, 1:125,000, or 1.9 statute mile to an inch. Sheets, 72- K- IV (Fumso), 72- Q- II (Prashu).. Published under the direction of Major F. G. Guggisberg, Director of Surveys, Gold Coast. London, 1907. (Price, 2s. a sheet.)

The earlier sheets of this important survey have been noticed in the BULLETIN. The width of many of the rivers at various points is given in feet. Roads that have been carefully surveyed are printed in red. The character of the roads, whether wagon road, bush track, hammock road, or hunters' trail, is indicated. Heights above sea level are in feet. Six symbols for towns show different degrees of importance.

AMERICA.

U. S. GEOLOGICAL SURVEY MAPS.

UNITED STATES.—Preliminary Geologic and Structural Map of the Lompoc and Guadalupe Quadrangles, California, including a large part of the Santa